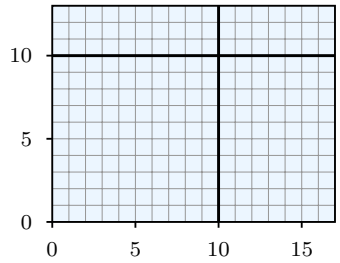
Area Model — Multiplication

Mr. Merrick · September 22, 2025

Part A — Draw splits on the grids, label each region, and find the product.

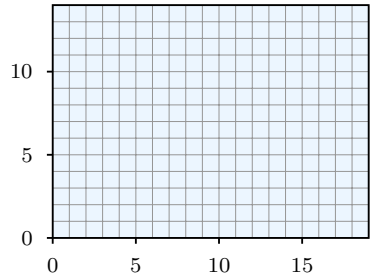
1) 17 × 13



Worked example. Split shown: $(10+7)(10+3)$.

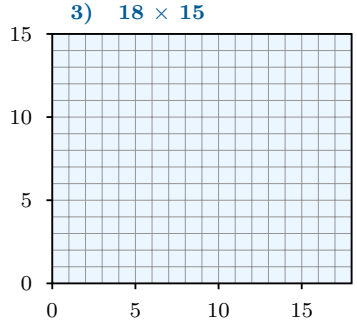
$$\begin{aligned}(17\times 13) &= (10+7)(10+3)\\ &= 10\times 10+10\times 3+7\times 10+7\times 3\\ &= 100+30+70+21\\ &= \boxed{221}\end{aligned}$$

2) 19 × 14



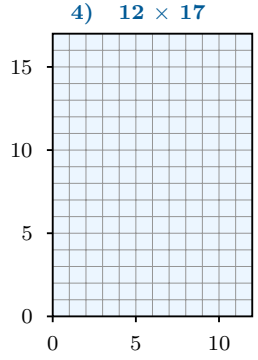
$$\begin{aligned}19\times 14 &= (10+9)(10+4)\\ &= ____ + ____ + ____ + ____\\ &= _____\end{aligned}$$

3) 18 × 15



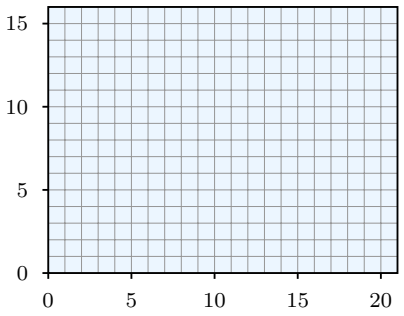
$$\begin{aligned}18\times 15 &= (10+8)(10+5)\\ &= ____ + ____ + ____ + ____\\ &= _____\end{aligned}$$

4) 12 × 17



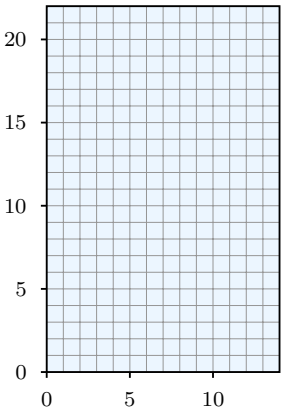
$$\begin{aligned}12\times 17 &= (10+2)(10+7)\\ &= ____ + ____ + ____ + ____\\ &= _____\end{aligned}$$

5) 21 × 16



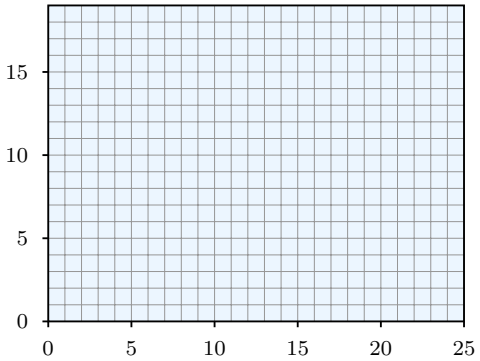
$$21 \times 16 = (20 + 1)(10 + 6)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

6) 14 × 22



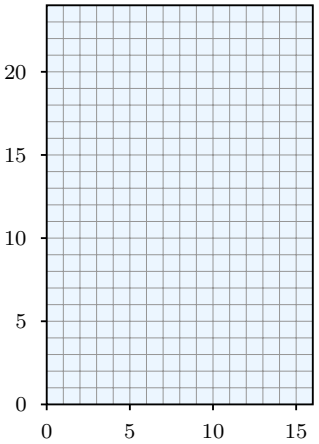
$$14 \times 22 = (10 + 4)(20 + 2)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

7) 25 × 19



$$25 \times 19 = (20 + 5)(10 + 9)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

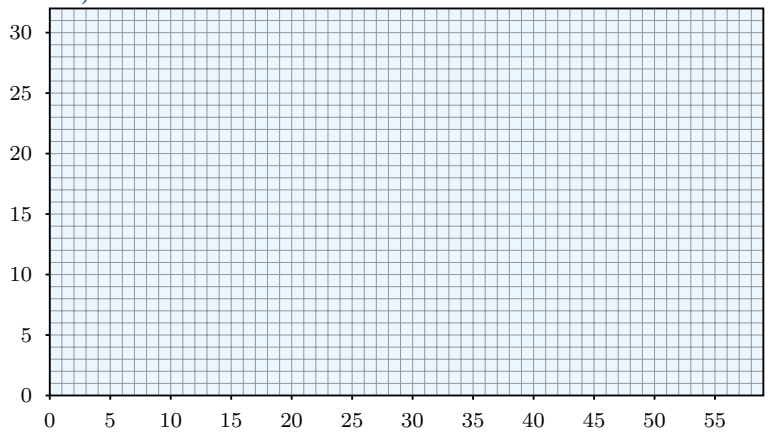
8) 16 × 24



$$16 \times 24 = (10 + 6)(20 + 4)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

Part B — Use flexible “breaks”, then expand and compute.

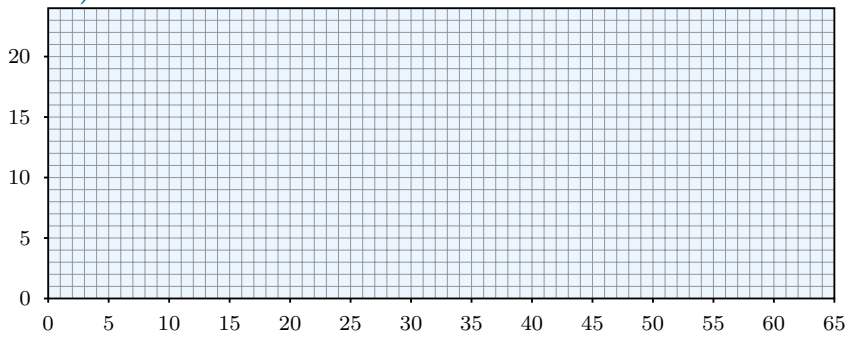
1) 59 × 32



Example break: $(50+9)(30+2)$. Draw matching split lines.

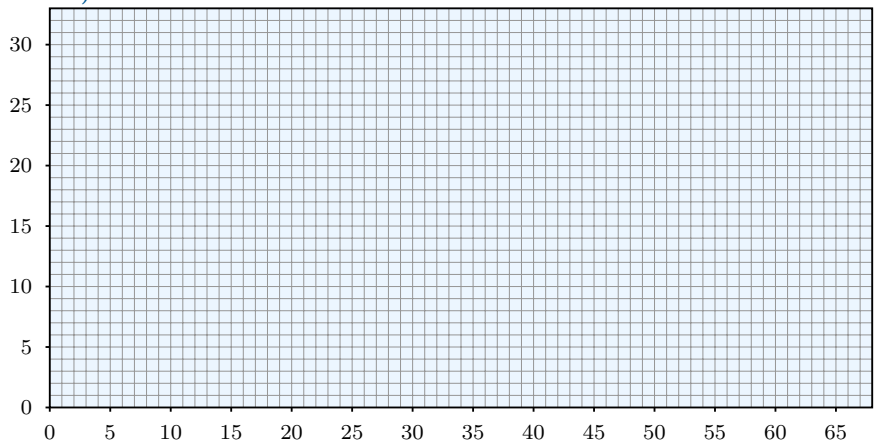
$$(50+9)(30+2) = ____ + ____ + ____ + ____$$
$$= _____$$

2) 65 × 24



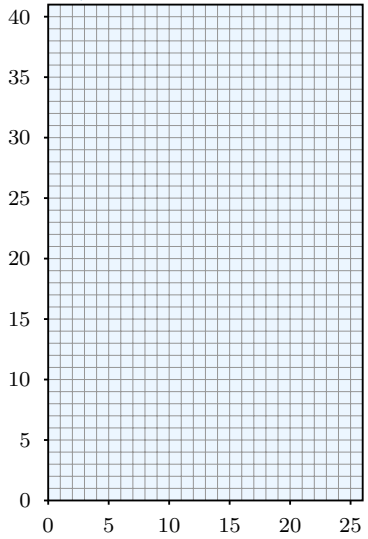
$$(30+35)(20+4) = ____ + ____ + ____ + ____$$
$$= _____$$

3) 68 × 33



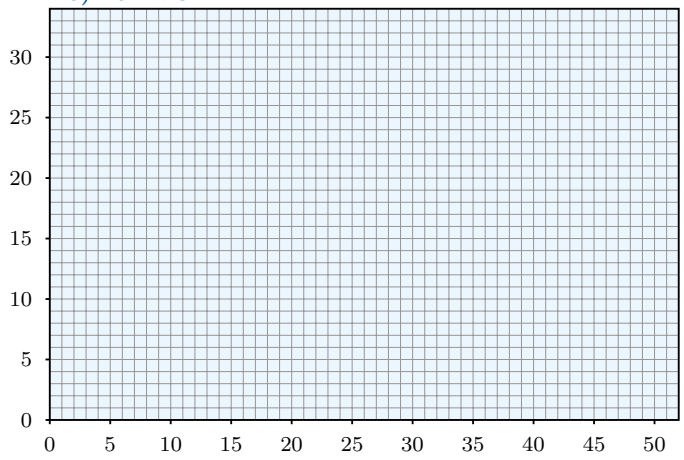
$$(60+8)(30+3) = ____ + ____ + ____ + ____$$
$$= _____$$

4) 26 × 41



$$(20+6)(40+1) = ____ + ____ + ____ + ____$$
$$= _____$$

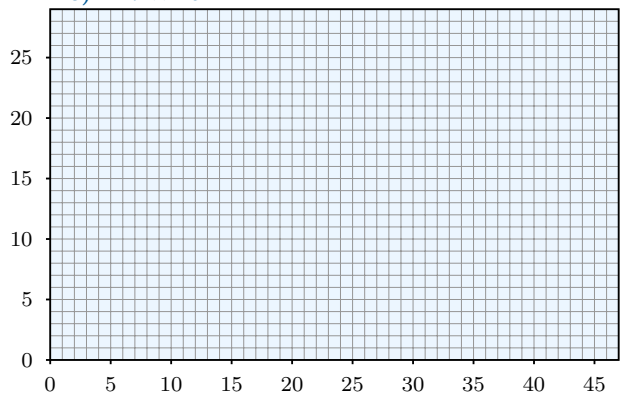
5) **52 × 34**



$(50+2)(30+4) = ____ + ____ + ____ + ____$

$= ____$

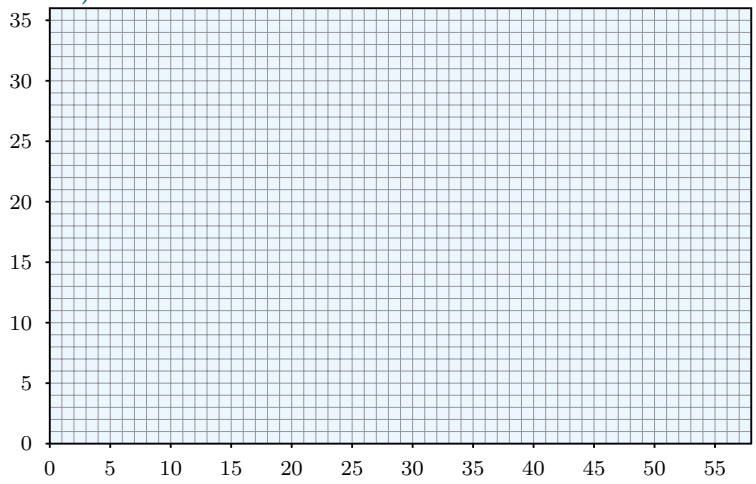
6) **47 × 29**



$(40+7)(20+9) = ____ + ____ + ____ + ____$

$= ____$

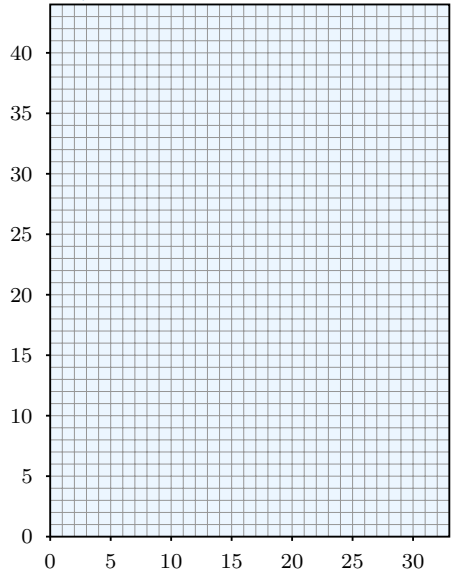
7) **58 × 36**



$(50+8)(30+6) = ____ + ____ + ____ + ____$

$= ____$

8) **33 × 44**

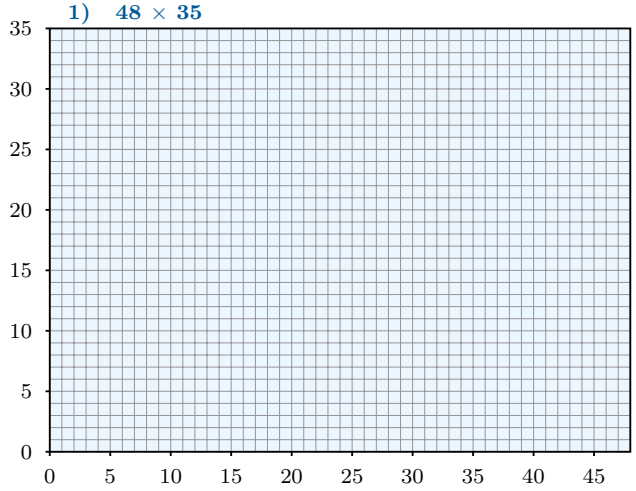


$(30+3)(40+4) = ____ + ____ + ____ + ____$

$= ____$

Part C — Choose your own breaks, then expand and compute.

1) 48 × 35

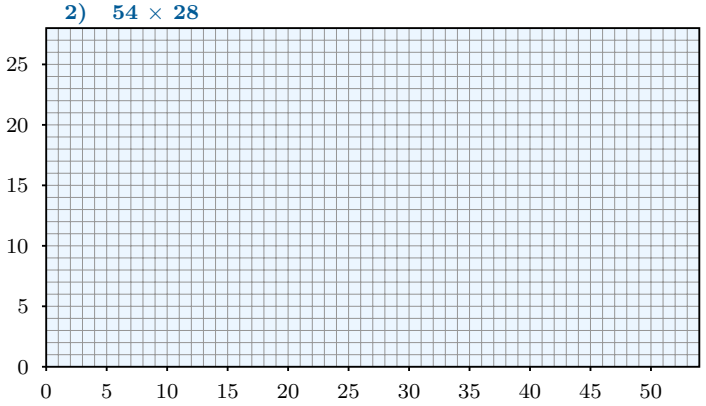


$48 \times 35 = (____ + ____)(____ + ____)$

$= ____ + ____ + ____ + ____$

$= _____$

2) 54 × 28

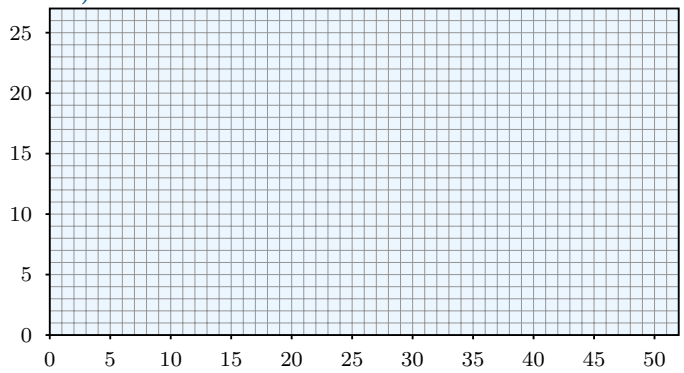


$54 \times 28 = (____ + ____)(____ + ____)$

$= ____ + ____ + ____ + ____$

$= _____$

3) 52 × 27

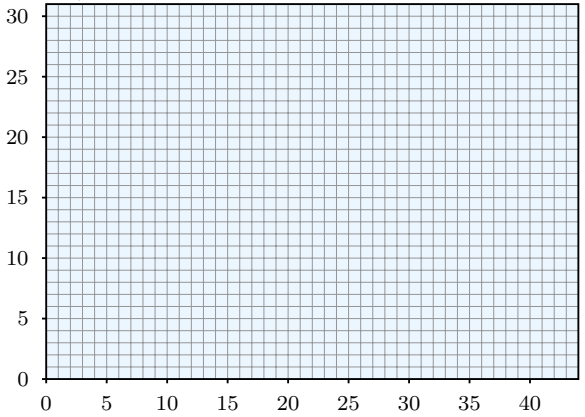


$52 \times 27 = (____ + ____)(____ + ____)$

$= ____ + ____ + ____ + ____$

$= _____$

4) 44 × 31

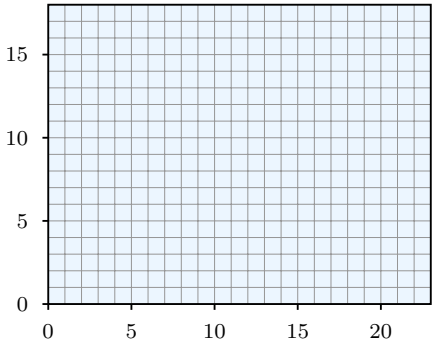


$44 \times 31 = (____ + ____)(____ + ____)$

$= ____ + ____ + ____ + ____$

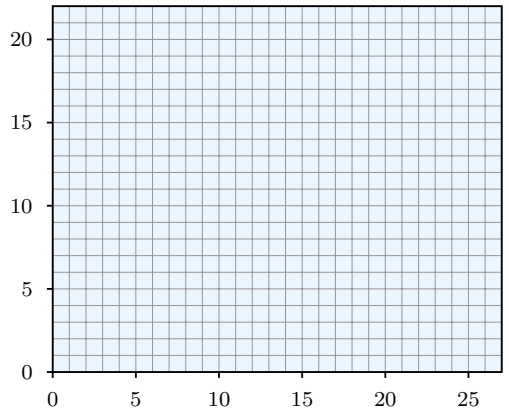
$= _____$

5) 23×18



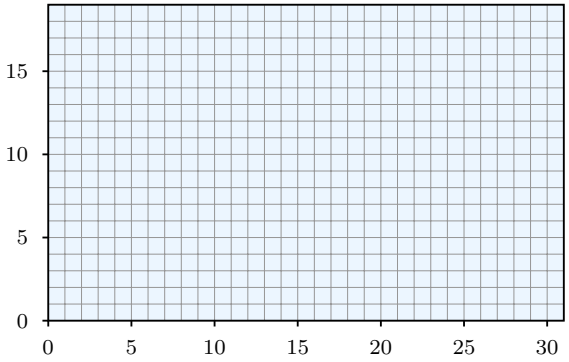
$$23 \times 18 = (____ + ____)(____ + ____)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

6) 27×22



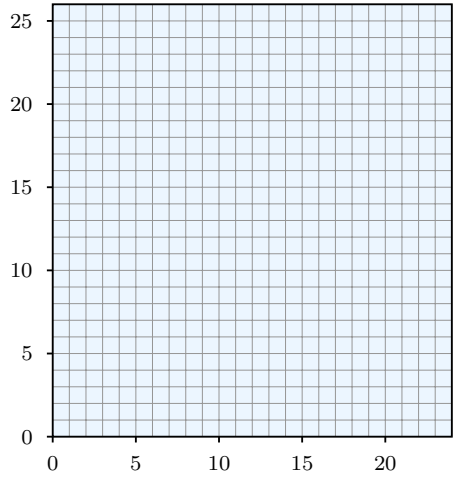
$$27 \times 22 = (____ + ____)(____ + ____)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

7) 31×19



$$31 \times 19 = (____ + ____)(____ + ____)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

8) 24×26



$$24 \times 26 = (____ + ____)(____ + ____)$$
$$= ____ + ____ + ____ + ____$$
$$= _____$$

Teacher Key — Product Totals

Part A

1) $17 \times 13 = 221$
2) $19 \times 14 = 266$
3) $18 \times 15 = 270$
4) $12 \times 17 = 204$
5) $21 \times 16 = 336$
6) $14 \times 22 = 308$
7) $25 \times 19 = 475$
8) $16 \times 24 = 384$

Part B

1) $59 \times 32 = 1888$
2) $65 \times 24 = 1560$
3) $68 \times 33 = 2244$
4) $26 \times 41 = 1066$
5) $52 \times 34 = 1768$
6) $47 \times 29 = 1363$
7) $58 \times 36 = 2088$
8) $33 \times 44 = 1452$

Part C (Page 1)

1) $48 \times 35 = 1680$
2) $54 \times 28 = 1512$
3) $52 \times 27 = 1404$
4) $44 \times 31 = 1364$

Part C (Page 2)

5) $23 \times 18 = 414$
6) $27 \times 22 = 594$
7) $31 \times 19 = 589$
8) $24 \times 26 = 624$